

SEQUENCE LISTING

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NUCLEIC ACID MOLECULES ENCODING THESE HUMAN RAS-LIKE
PROTEINS, AND USES THEREOF

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Glu Glu Phe Gln Ile Ile Arg Gly Asn Phe Pro Tyr Leu Ser Ala Phe		
450	455	460
Gly Asp Leu Asp Gln Asn Gln Asp Gly Cys Ile Ser Arg Glu Glu Met		
465	470	475
		480

Val Ser Tyr Phe Leu Arg Ser Ser Ser Val Leu Gly Gly Arg Met Gly
 485 490 495
 Phe Val His Asn Phe Gln Glu Ser Asn Ser Leu Arg Pro Val Ala Cys
 500 505 510
 Arg His Cys Lys Ala Leu Ile Leu Gly Ile Tyr Lys Gln Gly Leu Lys
 515 520 525
 Cys Arg Ala Cys Gly Val Asn Cys His Lys Gln Cys Lys Asp Arg Leu
 530 535 540
 Ser Val Glu Cys Arg Arg Ala Gln Ser Val Ser Leu Glu Gly Ser
 545 550 555 560
 Ala Pro Ser Pro Ser Pro Met His Ser His His Arg Ala Phe Ser
 565 570 575
 Phe Ser Leu Pro Arg Pro Gly Arg Gly Ser Arg Pro Pro Glu Ile
 580 585 590
 Arg Glu Glu Glu Val Gln Thr Val Glu Asp Gly Val Phe Asp Ile His
 595 600 605
 Leu

<210> 5
 <211> 664
 <212> PRT
 <213> Human

<400> 5
 Gly Arg Gly Thr Gln Gly Trp Pro Gly Ser Ser Glu Gln His Val Gln
 1 5 10 15
 Glu Ala Thr Ser Ser Ala Gly Leu His Ser Gly Val Asp Glu Leu Gly
 20 25 30
 Val Arg Ser Glu Pro Gly Gly Arg Leu Pro Glu Arg Ser Leu Gly Pro
 35 40 45
 Ala His Pro Ala Pro Ala Ala Met Ala Gly Thr Leu Asp Leu Asp Lys
 50 55 60
 Gly Cys Thr Val Glu Glu Leu Leu Arg Gly Cys Ile Glu Ala Phe Asp
 65 70 75 80
 Asp Ser Gly Lys Val Arg Asp Pro Gln Leu Val Arg Met Phe Leu Met
 85 90 95
 Met His Pro Trp Tyr Ile Pro Ser Ser Gln Leu Ala Ala Lys Leu Leu
 100 105 110
 His Ile Tyr Gln Gln Ser Arg Lys Asp Asn Ser Asn Ser Leu Gln Val
 115 120 125
 Lys Thr Cys His Leu Val Arg Tyr Trp Ile Ser Ala Phe Pro Ala Glu
 130 135 140
 Phe Asp Leu Asn Pro Glu Leu Ala Glu Gln Ile Lys Glu Leu Lys Ala
 145 150 155 160
 Leu Leu Asp Gln Glu Gly Asn Arg Arg His Ser Ser Leu Ile Asp Ile
 165 170 175
 Asp Ser Val Pro Thr Tyr Lys Trp Lys Arg Gln Val Thr Gln Arg Asn
 180 185 190
 Pro Val Gly Gln Lys Lys Arg Lys Met Ser Leu Leu Phe Asp His Leu
 195 200 205
 Glu Pro Met Glu Leu Ala Glu His Leu Thr Tyr Leu Glu Tyr Arg Ser
 210 215 220
 Phe Cys Lys Ile Leu Phe Gln Asp Tyr His Ser Phe Val Thr His Gly
 225 230 235 240
 Cys Thr Val Asp Asn Pro Val Leu Glu Arg Phe Ile Ser Leu Phe Asn

245	250	255
Ser Val Ser Gln Trp Val Gln Leu Met Ile Leu Ser Lys Pro Thr Ala		
260	265	270
Pro Gln Arg Ala Leu Val Ile Thr His Phe Val His Val Ala Glu Lys		
275	280	285
Leu Leu Gln Leu Gln Asn Phe Asn Thr Leu Met Ala Val Val Gly Gly		
290	295	300
Leu Ser His Ser Ser Ile Ser Arg Leu Lys Glu Thr His Ser His Val		
305	310	315
Ser Pro Glu Thr Ile Lys Leu Trp Glu Gly Leu Thr Glu Leu Val Thr		
325	330	335
Ala Thr Gly Asn Tyr Gly Asn Tyr Arg Arg Arg Leu Ala Ala Cys Val		
340	345	350
Gly Phe Arg Phe Pro Ile Leu Gly Val His Leu Lys Asp Leu Val Ala		
355	360	365
Leu Gln Leu Ala Leu Pro Asp Trp Leu Asp Pro Ala Arg Thr Arg Leu		
370	375	380
Asn Gly Ala Lys Met Lys Gln Leu Phe Ser Ile Leu Glu Glu Leu Ala		
385	390	395
Met Val Thr Ser Leu Arg Pro Pro Val Gln Ala Asn Pro Asp Leu Leu		
405	410	415
Ser Leu Leu Thr Val Ser Leu Asp Gln Tyr Gln Thr Glu Asp Glu Leu		
420	425	430
Tyr Gln Leu Ser Leu Gln Arg Glu Pro Arg Ser Lys Ser Ser Pro Thr		
435	440	445
Ser Pro Thr Ser Cys Thr Pro Pro Pro Arg Pro Pro Val Leu Glu Glu		
450	455	460
Trp Thr Ser Ala Ala Lys Pro Lys Leu Asp Gln Ala Leu Val Val Glu		
465	470	475
His Ile Glu Lys Met Val Glu Ser Val Phe Arg Asn Phe Asp Val Asp		
485	490	495
Gly Asp Gly His Ile Ser Gln Glu Glu Phe Gln Ile Ile Arg Gly Asn		
500	505	510
Phe Pro Tyr Leu Ser Ala Phe Gly Asp Leu Asp Gln Asn Gln Asp Gly		
515	520	525
Cys Ile Ser Arg Glu Glu Met Val Ser Tyr Phe Leu Arg Ser Ser Ser		
530	535	540
Val Leu Gly Gly Arg Met Gly Phe Val His Asn Phe Gln Glu Ser Asn		
545	550	555
Ser Leu Arg Pro Val Ala Cys Arg His Cys Lys Ala Leu Ile Leu Gly		
565	570	575
Ile Tyr Lys Gln Gly Leu Lys Cys Arg Ala Cys Gly Val Asn Cys His		
580	585	590
Lys Gln Cys Lys Asp Arg Leu Ser Val Glu Cys Arg Arg Arg Ala Gln		
595	600	605
Ser Val Ser Leu Glu Gly Ser Ala Pro Ser Pro Ser Pro Met His Ser		
610	615	620
His His His Arg Ala Phe Ser Phe Ser Leu Pro Arg Pro Gly Arg Arg		
625	630	635
Gly Ser Arg Pro Pro Glu Ile Arg Glu Glu Glu Val Gln Thr Val Glu		
645	650	655
Asp Gly Val Phe Asp Ile His Leu		
660		

<210> 6
<211> 608

<212> PRT
 <213> Mus musculus

<400> 6
 Met Ala Ser Thr Leu Asp Leu Asp Lys Gly Cys Thr Val Glu Glu Leu
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 Leu Arg Gly Cys Ile Glu Ala Phe Asp Asp Ser Gly Lys Val Arg Asp
 20 25 30
 Pro Gln Leu Val Arg Met Phe Leu Met Met His Pro Trp Tyr Ile Pro
 35 40 45
 Ser Ser Gln Leu Ala Ser Lys Leu Leu His Phe Tyr Gln Gln Ser Arg
 50 55 60
 Lys Asp Asn Ser Asn Ser Leu Gln Val Lys Thr Cys His Leu Val Arg
 65 70 75 80
 Tyr Trp Val Ser Ala Phe Pro Ala Glu Phe Asp Leu Asn Pro Glu Leu
 85 90 95
 Ala Glu Pro Ile Lys Glu Leu Lys Ala Leu Leu Asp Gln Glu Gly Asn
 100 105 110
 Arg Arg His Ser Ser Leu Ile Asp Ile Glu Ser Val Pro Thr Tyr Lys
 115 120 125
 Trp Lys Arg Gln Val Thr Gln Arg Asn Pro Val Glu Gln Lys Lys Arg
 130 135 140
 Lys Met Ser Leu Leu Phe Asp His Leu Glu Pro Met Glu Leu Ala Glu
 145 150 155 160
 His Leu Thr Tyr Leu Glu Tyr Arg Ser Phe Cys Lys Ile Leu Phe Gln
 165 170 175
 Asp Tyr His Ser Phe Val Thr His Gly Cys Thr Val Asp Asn Pro Val
 180 185 190
 Leu Glu Arg Phe Ile Ser Leu Phe Asn Ser Val Ser Gln Trp Val Gln
 195 200 205
 Leu Met Ile Leu Ser Lys Pro Thr Ala Thr Gln Arg Ala Leu Val Ile
 210 215 220
 Thr His Phe Val His Val Ala Glu Lys Leu Leu Gln Leu Gln Asn Phe
 225 230 235 240
 Asn Thr Leu Met Ala Val Val Gly Gly Leu Ser His Ser Ser Ile Ser
 245 250 255
 Arg Leu Lys Glu Thr His Ser His Val Ser Pro Asp Thr Ile Lys Leu
 260 265 270
 Trp Glu Gly Leu Thr Glu Leu Val Thr Ala Thr Gly Asn Tyr Ser Asn
 275 280 285
 Tyr Arg Arg Arg Leu Ala Ala Cys Val Gly Phe Arg Phe Pro Ile Leu
 290 295 300
 Gly Val His Leu Lys Asp Leu Val Ala Leu Gln Leu Ala Leu Pro Asp
 305 310 315 320
 Trp Leu Asp Pro Gly Arg Thr Arg Leu Asn Gly Ala Lys Met Arg Gln
 325 330 335
 Leu Phe Ser Ile Leu Glu Glu Leu Ala Met Val Thr Ser Leu Arg Pro
 340 345 350
 Pro Val Gln Ala Asn Pro Asp Leu Leu Ser Leu Leu Thr Val Ser Leu
 355 360 365
 Asp Gln Tyr Gln Thr Glu Asp Glu Leu Tyr Gln Leu Ser Leu Gln Arg
 370 375 380
 Glu Pro Arg Ser Lys Ser Ser Pro Thr Ser Pro Thr Ser Cys Thr Pro
 385 390 395 400
 Pro Pro Arg Pro Pro Val Leu Glu Glu Trp Thr Ser Val Ala Lys Pro
 405 410 415
 Lys Leu Asp Gln Ala Leu Val Ala Glu His Ile Glu Lys Met Val Glu

420	425	430
Ser Val Phe Arg Asn Phe Asp Val Asp Gly Asp Gly His Ile Ser Gln		
435	440	445
Glu Glu Phe Gln Ile Ile Arg Gly Asn Phe Pro Tyr Leu Ser Ala Phe		
450	455	460
Gly Asp Leu Asp Gln Asn Gln Asp Gly Cys Ile Ser Arg Glu Glu Met		
465	470	475
Ile Ser Tyr Phe Leu Arg Ser Ser Val Leu Gly Gly Arg Met Gly		
485	490	495
Phe Val His Asn Phe Gln Glu Ser Asn Ser Leu Arg Pro Val Ala Cys		
500	505	510
Arg His Cys Lys Ala Leu Ile Leu Gly Ile Tyr Lys Gln Gly Leu Lys		
515	520	525
Cys Arg Ala Cys Gly Val Asn Cys His Lys Gln Cys Lys Asp Arg Leu		
530	535	540
Ser Val Glu Cys Arg Arg Ala Gln Ser Val Ser Leu Glu Gly Ser		
545	550	555
Ala Pro Ser Pro Ser Pro Thr His Thr His His Arg Ala Phe Ser Phe		
565	570	575
Ser Leu Pro Arg Pro Gly Arg Arg Ser Ser Arg Pro Pro Glu Ile Arg		
580	585	590
Glu Glu Glu Val Gln Thr Val Glu Asp Gly Val Phe Asp Ile His Leu		
595	600	605

<210> 7
 <211> 591
 <212> PRT
 <213> Human

<400> 7	15
Gly Ser Ser Gly Leu Gly Lys Ala Ala Thr Leu Asp Glu Leu Leu Cys	
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Thr Cys Ile Glu Met Phe Asp Asp Asn Gly Glu Leu Asp Asn Ser Tyr	
20 25 30	
Leu Pro Arg Ile Val Leu Leu Met His Arg Trp Tyr Leu Ser Ser Thr	
35 40 45	
Glu Leu Ala Glu Lys Leu Leu Cys Met Tyr Arg Asn Ala Thr Gly Glu	
50 55 60	
Ser Cys Asn Glu Phe Arg Leu Lys Ile Cys Tyr Phe Met Arg Tyr Trp	
65 70 75 80	
Ile Leu Lys Phe Pro Ala Glu Phe Asn Leu Asp Leu Gly Leu Ile Arg	
85 90 95	
Met Thr Glu Glu Phe Arg Glu Val Ala Ser Gln Leu Gly Tyr Glu Lys	
100 105 110	
His Val Ser Leu Ile Asp Ile Ser Ser Ile Pro Ser Tyr Asp Trp Met	
115 120 125	
Arg Arg Val Thr Gln Arg Lys Lys Val Ser Lys Lys Gly Lys Ala Cys	
130 135 140	
Leu Leu Phe Asp His Leu Glu Pro Ile Glu Leu Ala Glu His Leu Thr	
145 150 155 160	
Phe Leu Glu His Lys Ser Phe Arg Arg Ile Ser Phe Thr Asp Tyr Gln	
165 170 175	
Ser Tyr Val Ile His Gly Cys Leu Glu Asn Asn Pro Thr Leu Glu Arg	
180 185 190	
Ser Ile Ala Leu Phe Asn Gly Ile Ser Lys Trp Val Gln Leu Met Val	
195 200 205	

Leu Ser Lys Pro Thr Pro Gln Gln Arg Ala Glu Val Ile Thr Lys Phe
 210 215 220
 Ile Asn Val Ala Lys Lys Leu Leu Gln Leu Lys Asn Phe Asn Thr Leu
 225 230 235 240
 Met Ala Val Val Gly Gly Leu Ser His Ser Ser Ile Ser Arg Leu Lys
 245 250 255
 Glu Thr His Ser His Leu Ser Ser Glu Val Thr Lys Asn Trp Asn Glu
 260 265 270
 Met Thr Glu Leu Val Ser Ser Asn Gly Asn Tyr Cys Asn Tyr Arg Lys
 275 280 285
 Ala Phe Ala Asp Cys Asp Gly Phe Lys Ile Pro Ile Leu Gly Val His
 290 295 300
 Leu Lys Asp Leu Ile Ala Val His Val Ile Phe Pro Asp Trp Thr Glu
 305 310 315 320
 Glu Asn Lys Val Asn Ile Val Lys Met His Gln Leu Ser Val Thr Leu
 325 330 335
 Ser Glu Leu Val Ser Leu Gln Asn Ala Ser His His Leu Glu Pro Asn
 340 345 350
 Met Asp Leu Ile Asn Leu Leu Thr Leu Ser Leu Asp Leu Tyr His Thr
 355 360 365
 Glu Asp Asp Ile Tyr Lys Leu Ser Leu Val Leu Glu Pro Arg Asn Ser
 370 375 380
 Lys Ser Pro Thr Ser Pro Thr Pro Asn Lys Pro Val Val Pro Leu
 385 390 395 400
 Glu Trp Ala Leu Gly Val Met Pro Lys Pro Asp Pro Thr Val Ile Asn
 405 410 415
 Lys His Ile Arg Lys Leu Val Glu Ser Val Phe Arg Asn Tyr Asp His
 420 425 430
 Asp His Asp Gly Tyr Ile Ser Gln Glu Asp Phe Glu Ser Ile Ala Ala
 435 440 445
 Asn Phe Pro Phe Leu Asp Ser Phe Cys Val Leu Asp Lys Asp Gln Asp
 450 455 460
 Gly Leu Ile Ser Lys Asp Glu Met Met Ala Tyr Phe Leu Arg Ala Lys
 465 470 475 480
 Ser Gln Leu His Cys Lys Met Gly Pro Gly Phe Ile His Asn Phe Gln
 485 490 495
 Glu Met Thr Tyr Leu Lys Pro Thr Phe Cys Glu His Cys Ala Gly Phe
 500 505 510
 Leu Trp Gly Ile Ile Lys Gln Gly Tyr Lys Cys Lys Asp Cys Gly Ala
 515 520 525
 Asn Cys His Lys Gln Cys Lys Asp Leu Leu Val Leu Ala Cys Arg Arg
 530 535 540
 Phe Ala Arg Ala Pro Ser Leu Ser Ser Gly His Gly Ser Leu Pro Gly
 545 550 555 560
 Ser Pro Ser Leu Pro Pro Ala Gln Asp Glu Val Phe Glu Phe Pro Gly
 565 570 575
 Val Thr Ala Gly His Arg Asp Leu Asp Ser Arg Ala Ile Thr Leu
 580 585 590

<210> 8

<211> 581

<212> PRT

<213> Rattus norvegicus

<400> 8

Gly Ser Arg Ala Gly Pro Lys Gly Arg Leu Glu Ala Lys Ser Thr Asn

1	5	10	15												
Ser	Pro	Leu	Pro	Ala	Gln	Pro	Ser	Leu	Ala	Gln	Ile	Thr	Gln	Phe	Arg
		20				25							30		
Met	Met	Val	Ser	Leu	Gly	His	Leu	Ala	Lys	Gly	Ala	Ser	Leu	Asp	Asp
		35				40						45			
Leu	Ile	Asp	Ser	Cys	Ile	Gln	Ser	Phe	Asp	Ala	Asp	Gly	Asn	Leu	Cys
		50				55					60				
Arg	Ser	Asn	Gln	Leu	Leu	Gln	Val	Met	Leu	Thr	Met	His	Arg	Ile	Ile
		65				70				75		80			
Ile	Ser	Ser	Ala	Glu	Leu	Leu	Gln	Lys	Leu	Met	Asn	Leu	Tyr	Lys	Asp
		85				90					95				
Ala	Leu	Glu	Lys	Asn	Ser	Pro	Gly	Ile	Cys	Leu	Lys	Ile	Cys	Tyr	Phe
		100				105					110				
Val	Arg	Tyr	Trp	Ile	Thr	Glu	Phe	Trp	Ile	Met	Phe	Lys	Met	Asp	Ala
		115				120				125					
Ser	Leu	Thr	Ser	Thr	Met	Glu	Glu	Phe	Gln	Asp	Leu	Val	Lys	Ala	Asn
		130				135				140					
Gly	Glu	Glu	Ser	His	Cys	His	Leu	Ile	Asp	Thr	Thr	Gln	Ile	Asn	Ser
		145				150				155		160			
Arg	Asp	Trp	Ser	Arg	Lys	Leu	Thr	Gln	Arg	Ile	Lys	Ser	Asn	Thr	Ser
		165				170				175					
Lys	Lys	Arg	Lys	Val	Ser	Leu	Leu	Phe	Asp	His	Leu	Glu	Pro	Glu	Glu
		180				185				190					
Leu	Ser	Glu	His	Leu	Thr	Tyr	Leu	Glu	Phe	Lys	Ser	Phe	Arg	Arg	Ile
		195				200				205					
Ser	Phe	Ser	Asp	Tyr	Gln	Asn	Tyr	Leu	Val	Asn	Ser	Cys	Val	Lys	Glu
		210				215				220					
Asn	Pro	Thr	Met	Glu	Arg	Ser	Ile	Ala	Leu	Cys	Asn	Gly	Ile	Ser	Gln
		225				230				235		240			
Trp	Val	Gln	Leu	Met	Val	Leu	Ser	Arg	Pro	Thr	Pro	Gln	Leu	Arg	Ala
		245				250				255					
Glu	Val	Phe	Ile	Lys	Phe	Ile	His	Val	Ala	Gln	Lys	Leu	His	Gln	Leu
		260				265				270					
Gln	Asn	Phe	Asn	Thr	Leu	Met	Ala	Val	Ile	Gly	Gly	Leu	Cys	His	Ser
		275				280				285					
Ser	Ile	Ser	Arg	Leu	Lys	Glu	Thr	Ser	Ser	His	Val	Pro	His	Glu	Ile
		290				295				300					
Asn	Lys	Val	Leu	Gly	Glu	Met	Thr	Glu	Leu	Leu	Ser	Ser	Cys	Arg	Asn
		305				310				315		320			
Tyr	Asp	Asn	Tyr	Arg	Arg	Ala	Tyr	Gly	Glu	Cys	Thr	His	Phe	Lys	Ile
		325				330				335					
Pro	Ile	Leu	Gly	Val	His	Leu	Lys	Asp	Leu	Ile	Ser	Leu	Tyr	Glu	Ala
		340				345				350					
Met	Pro	Asp	Tyr	Leu	Glu	Asp	Gly	Lys	Val	Asn	Val	Gln	Lys	Leu	Leu
		355				360				365					
Ala	Leu	Tyr	Asn	His	Ile	Asn	Glu	Leu	Val	Gln	Leu	Gln	Asp	Val	Ala
		370				375				380					
Pro	Pro	Leu	Asp	Ala	Asn	Lys	Asp	Leu	Val	His	Leu	Leu	Thr	Leu	Ser
		385				390				395		400			
Leu	Asp	Leu	Tyr	Tyr	Thr	Glu	Asp	Glu	Ile	Tyr	Glu	Leu	Ser	Tyr	Ala
		405				410				415					
Arg	Glu	Pro	Arg	Asn	His	Arg	Ala	Pro	Pro	Leu	Thr	Pro	Ser	Lys	Pro
		420				425				430					
Pro	Val	Val	Asp	Trp	Ala	Ser	Gly	Val	Ser	Pro	Lys	Pro	Asp	Pro	
		435				440				445					
Lys	Thr	Ile	Ser	Lys	His	Val	Gln	Arg	Met	Val	Asp	Ser	Val	Phe	Lys
		450				455				460					

Asn Tyr Asp Leu Asp Gln Asp Gly Tyr Ile Ser Gln Glu Glu Phe Glu
465 470 475 480
Lys Ile Ala Ala Ser Phe Pro Phe Ser Phe Cys Val Met Asp Lys Asp
485 490 495
Arg Glu Gly Leu Ile Ser Arg Asp Glu Ile Thr Ala Tyr Phe Met Arg
500 505 510
Ala Ser Ser Ile Tyr Ser Lys Leu Gly Leu Gly Phe Pro His Asn Phe
515 520 525
Gln Glu Thr Thr Tyr Leu Lys Pro Thr Phe Cys Asp Asn Cys Ala Gly
530 535 540
Phe Leu Trp Gly Val Ile Lys Gln Gly Tyr Arg Cys Lys Asp Cys Gly
545 550 555 560
Met Asn Cys His Lys Gln Cys Lys Asp Leu Val Val Phe Glu Cys Lys
565 570 575
Lys Arg Ser Lys Ser
580